

Page 1

SVL92001-DD47451

BEST AVAILABLE COPY

**Disclosure SVL8-2001-0027**

Prepared for and/or by an IBM Attorney - IBM Confidential

Created By: Michael Morrison

Created On: [REDACTED]

Last Modified By: [REDACTED]

Last Modified On: [REDACTED]

Required fields are marked with the asterisk (*) and must be filled in to complete the form

***Title of disclosure (in English)**

Method and apparatus for tracking usage of HTML-based online help systems

Summary

Status	Final Decision (File)
Docket Family	SVL9-2001-0047
Processing Location	SVL
Functional Area	[REDACTED]
Attorney/Patent Professional	[REDACTED]
IDT Team	[REDACTED]
Submitted Date	[REDACTED]
Owning Division	DM
Incentive Program	
Lab	
Technology Code	
PVT Score	18

Inventors with a Blue Pages entry

Inventors: Michael Morrison/Santa Teresa/IBM

Inventor Name	Inventor Serial ²	Div/Dept	Inventor Phone	Manager Name
> Morrison, M C (Michael)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

> denotes primary contact

Inventors without a Blue Pages entry**IDT Selection**

Select Functional Area

IDT Team: [REDACTED]

Attorney/Patent Professional: [REDACTED]

Response Due to IP&L [REDACTED]

PAGE 2

SVL8-2001-0027 Method and apparatus for tracking usage of HTML-based online help systems - continued

***Main Idea**

1. Describe your invention, stating the problem solved (if appropriate), and indicating the advantages of using the invention.

Disclosed is a method for tracking a user's location and viewing history within an HTML-based online help system using persistent data in cookies. By keeping track of a user's progress in using the online help system, the help system can allow the user to customise his or her use of the help system and thus view information tailored to his or her needs.

A typical HTML-based online help system for a GUI contains many hundreds of HTML files with hundreds of links between these files. The typical HTML-based online help system also consists of statically linked files, with the start and end of the links defined by the author of the online help.

The proposed method adds JavaScript code to the HTML files to process cookies for the online help system. For each HTML file in the online help system opened by the user, the JavaScript adds an ID to the cookie that corresponds to the file opened. Thus, the cookie stores the user's current location within the online help system. With the addition of timestamp information, the cookie can also maintain a history of every file in the online help system opened by the user. The JavaScript can also distinguish between files opened from the GUI (or from outside the online help system) and those opened by clicking links within the online help system.

By tracking the user's usage of the online help, the JavaScript code can use artificial intelligence techniques and author-defined meta tags in the HTML files to allow the user to customise his or her experience with the online help. For example, if a user clicks several links related to a particular topic, the online help could infer the job specialty of the user, and thus hide some of the information (for example, the more basic introductory material) and include some extra information that otherwise might not be visible (for example, advanced techniques or hints and tips). For another user, the online help could infer that he or she is a novice, and thus show only the introductory material, and hide the more advanced information. As a fallback in case the inferences made by the online help system should prove incorrect, the user can reset the inferences, thus changing the data in the cookies. Also, all of the information could be available from the index or table of contents of the online help system.

To enable the customisation, the author of the online help would have to add meta tags that identify the type of information in each HTML file. The information type is probably already known to the author, so the task becomes one of adding the meta tags.

By using JavaScript to process the cookies and the HTML files, the user does not need to have a locally installed Web server running. Nor does the author have to provide complex style-sheets for different types of information. The JavaScript can use the information in the cookies and the meta tags to dynamically show information to the user, thus imitating the function of server-side include (SSI) files typically processed by a Web server. This dynamic processing of files also allows the author to maintain a single set of source files, rather than separate sets for each category of potential user.

2. How does the invention solve the problem or achieve an advantage, (a description of "the invention", including figures inline as appropriate)?

Current HTML-based online help systems are typically a set of statically linked files that the user cannot customise. Help authors provide alternate usage paths to aid different kinds of users, but the user cannot modify these paths dynamically. This proposal allows authors to provide alternate usage paths that users can dynamically modify, and stores the information within the online help system itself.

3. If the same advantage or problem has been identified by others (inside/outside IBM), how have those others solved it and does your solution differ and why is it better?

Other online help systems either do not have such function as is proposed here, or require proprietary help engines. Other solutions require the application program that calls the online help to track usage of the

tag 3

SVL8-2001-0027 Method and apparatus for tracking usage of HTML-based online help systems - continued

help, and store the information within the application or in a database. HTML-based help does not address user customisation

By using JavaScript instead of CGI scripts or Java servlets, this proposal removes the need for a Web server, which might otherwise be required to implement dynamic user customisation of HTML help. Java applets are not appropriate because they cannot maintain state without writing to a cookie file, and in this case, JavaScript is still required. Advanced AI-like function, however, could be provided by a Java applet that interacts with the JavaScript.

4. If the invention is implemented in a product or prototype, include technical details, purpose, disclosure details to others and the date of that implementation.

N/A

Critical Questions (Questions 1-9 must be answered in English)**Question 1**

On what date was the invention workable?  Please format the date as MM/DD/YYYY (Workable means i.e. when you know that your design will solve the problem)

***Question 2**

Is there any planned or actual publication or disclosure of your invention to anyone outside IBM? ☐ Yes ☒ No




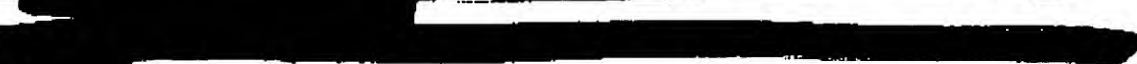

If yes, Enter the name of each publication or patent and the date published below.

Publication/Patent

Date Published or Issued

Are you aware of any publications, products or patents that relate to this invention? ☒ Yes ☐ No

If yes, Enter the name of each publication or patent and the date published below.

***Question 3**

Has the subject matter of the invention or a product incorporating the invention been sold, used internally in manufacturing, announced for sale, or included in a proposal? ☐ Yes ☒ No

Is a sale, use in manufacturing, product announcement, or proposal planned? ☐ Yes ☒ No

If Yes, identify the product if known and indicate the date or planned date of sale, announcements, or proposal and to whom the sale, announcement or proposal has been or will be made.

Product

Version/Release:

Code Name

Date

Page 4

SVLB-2001-0027 Method and apparatus for tracking usage of HTML-based online help systems - continued

To Whom:

If more than one, use cut and paste and append as necessary in the field provided.

***Question 4**

Was the subject matter of your invention or a product incorporating your invention used in public, e.g., outside IBM or in the presence of non-IBMers?

If yes, give a date. [REDACTED]

☐ Yes
☒ No***Question 5**

Have you ever discussed your invention with others not employed at IBM?

If yes, identify individuals and date discussed. Fill in the text area with the following information, the names of the individuals, the employer, date discussed, under CDA, and CDA #

☐ Yes
☒ No***Question 6**

Was the invention, in any way, started or developed under a government contract or project?

If Yes, enter the contract number

☐ Yes
☒ No
☐ Not sure***Question 7**

Was the invention made in the course of any alliance, joint development or other contract activities?

If Yes, enter the following:

Name of Alliance, Contractor or Joint Developer
Contract ID number
Relationship contact name
Relationship contact E-mail
Relationship contact phone

☐ Yes
☒ No
☐ Not Sure***Question 8**

Have you, or any of the other inventors, submitted this same invention disclosure or similar invention disclosure previously?

If Yes, please provide disclosure number below:

☐ Yes
☒ No***Question 9**

Are you, or any of the other inventors, aware of any related inventions disclosures submitted by anyone in IBM previously?

If Yes, please provide the docket or disclosure number or any other identifying information below:

☐ Yes
☒ No**Question 10**

What type of companies do you expect to compete with inventions of this type? Check all that apply.

Page 5

SVL6-2001-0027 Method and apparatus for tracking usage of HTML-based online help systems - continued

- ☐ Manufacturers of enterprise servers
- ☐ Manufacturers of entry servers
- ☐ Manufacturers of workstations
- ☐ Manufacturers of PC's
- ☐ Non-computer manufacturers
- ☒ Developers of operating systems
- ☐ Developers of networking software
- ☒ Developers of application software
- ☐ Integrated solution providers
- ☐ Service providers
- ☐ Other (Please specify below)

Question 11

If the invention relates to a product or service that is outside the scope of your business unit, please recommend IBM business unit(s), IBM location(s) or individual(s) within IBM that you think would provide a good evaluation of your invention:

Patent Value Tool (Optional - this may be used by the inventor and attorney to assist with the evaluation)
(The Patent Value tool can be used by the inventor(s) to determine the potential licensing value of your invention.)

These are the answers which were entered into the Patent Value Tool. If you would like to modify these answers and recalculate the PVT score, click on the 'Calculate' button

Market

What is the anticipated annual market size (in dollars) that will be captured by your invention?

Too new to estimate

Reason(s) for above Answer Online help is provided as part of a GUI-based product, and does not typically generate revenue. The ability to customise the help could be a differentiator for sales, however.

CLAIMS

Question 1 - How new is the technical field?

Existing

Reason(s) for above Answer HTML help is fairly common.

Question 2 - How central is the invention to the product(s) which might be expected to contain the invention?

Main

Reason(s) for above Answer Online help is essential to a product, but the ability to customise it is peripheral.

Question 3 - What is the scope of the claim?

Moderate

Reason(s) for above Answer The ability to store information about online help usage is herein presented for allowing the user to customise his or her experience of the help, but could also be used for other purposes.

PORTFOLIO NEED

What are the portfolio needs in the area of your invention?

Listed in PPM Needs

Reason(s) for above Answer 200-J-1, 200-K-6, 400-D, 400-E

SVL8-2001-0027 Method and apparatus for tracking usage of HTML-based online help systems - continued

EXPLOITATION & ENFORCEMENT**Question 1** - How easily can the use of the invention by a competitor be detected?

Trivially

Reason(s) for above Answer The existence of cookie created by the local system for the online help are easily detected.

Question 2 - How easily can the use of the invention be avoided by a competitor?

With much work

Reason(s) for above Answer If a competitor wishes to use standard HTML for online help, and track the usage of the help and allow user customisation, it would be very difficult. A competitor could provide a non-HTML solution, however. Note that an XML solution would use the same mechanism proposed by this invention.

BUSINESS VALUE**Question 1** - What percentage of the companies producing products in the field of this invention might use this invention?

Broadly cloned

Reason(s) for above Answer I assume that once the technique for tracking usage of online help becomes known, it will be widely adopted, just as HTML has become widely adopted for online help.

Question 2 - What is the value of this patent to current or anticipated Alliance Activity between IBM and other companies?

Some value

Reason(s) for above Answer Online help probably doesn't have high visibility to our alliance activity

Question 3 - What is the value of this patent to current or anticipated Technology Transfer Activity between IBM and other companies?

Some value

Reason(s) for above Answer Online help probably doesn't have high visibility to our technology transfer.

Question 4 - Does it result in prestige to IBM?

Industry wide

Reason(s) for above Answer If the proposed technique does become widely adopted, it will be prestigious for IBM to be seen as a leader in online help and user assistance.

Final Decision

This decision was entered by [REDACTED]

Decision: File

Status: N/A

PPM Area: 600 - Software related services, applications Attorney Rating: 2
& solutions

Date of Final Decision [REDACTED]

Additional filing information

Planned Filing date [REDACTED]

Filing comments.

Dates have been entered in the format MM/DD/YYYY

Additional decision comments**Final Decision History**

Page 7

SVL8-2001 0027 Method and apparatus for tracking usage of HTML-based online help systems - continued

Entered on [REDACTED]
File N/A [REDACTED] Pocket Family [REDACTED]

Post Disclosure Text & Drawings

Enter any additional information relating to this disclosure below:

(Form Revised 12/17/97)

PAGE 1

IBM DOCKET: SVL 9-2001-0047
451► Michael Morrison
[REDACTED]
.....

To: [REDACTED]
 cc: [REDACTED]
 From: Michael Morrison/Santa Teresa/IBM@IBMUS
 Subject: Re: IBM Confidential: SVL8-2001-0027: Method and apparatus for tracking usage of HTML-based online help systems [REDACTED]
 Importance: Normal

I'm not particularly good at drawing flow charts online, so perhaps what I have below will serve your needs? If not, let me know, and I can add to it. I also don't have a working prototype, so I've created some pseudocode and a few scenarios.

Here is some pseudocode (in lieu of flowchart) that summarises the basic behaviour you ask about below:

Pseudocode

define: number of links to show for all topics as default value
 define: link timeout as default value

```
routine: checkLinkTimeout( link ) {
    if link time < link timeout {
        hide all but topmost links for link topic
        remove topic ID from cookie
    }
    else {
        subtract from link time
    }
}
```

main code:

```
...
if topic ID in cookie { // i.e., if user has selected a topic related to this
one before
    if user score >= threshold {
        show all links for topic
        set timeout for topic links to maximum
    }
}
else {
    mark link as seen before
    store topic ID in cookie
}
Add to user score for topic
call checkLinkTimeout() for all link topics in cookie
...
```

In addition, imagine we have the following HTML Table of Contents (perhaps as the left-hand frame of a multi-framed layout, or as a separate ToC window):

Sample Table of Contents

Page 2

- 1. Product Overview
 - 1. Introduction to &company, Database
 - 2. Features and Functions
- 2. Getting Started
 - 1. Installation
 - 2. Environment Variables
 - 3. Using the Command Line
 - 4. Using the GUI
- 3. Controlling Access
 - 1. Overview of Security
 - 2. Authentication
 - 3. Authorization Levels
 - 4. User Privileges
 - 5. Object Privileges
 - 6. Establishing a Secure Connection
- 4. Using SQL
 - 1. Data Types
 - 2. DDL
 - 3. DML
 - 4. Using Views
 - 5. Defining Business Rules
 - 6. Advanced SQL
- 5 Etc.

If we assume that the pseudocode is included in the HTML file as JavaScript, ActiveX components, or other browser-compatible scripting language, the following scenarios will show how it should work:

User 1 scenario

User 1 is a DBA, and already knows the product, and does not write much SQL

Initially, the Table of Contents looks like this:

- 1. Product Overview
- 2. Getting Started
- 3. Controlling Access
- 4. Using SQL
- 5. Etc.

Also, all links have their link time as the default, perhaps equal to zero.

User 1 enters the HTML help system looking for security information

After clicking several links related to security (or performing a search on the topic), the user score for this topic exceeds the threshold, and the ToC expands to look like this.

- 1. Product Overview
- 2. Getting Started
- 3. Controlling Access
 - 1. Overview of Security
 - 2. Authentication
 - 3. Authorization Levels
 - 4. User Privileges
 - 5. Object Privileges
 - 6. Establishing a Secure Connection
- 4. Using SQL
- 5 Etc.

Page 3

User 2 scenario

User 2 is a novice user.

Initially, the Table of Contents looks like this:

- 1.Product Overview
- 2 Getting Started
- 3.Controlling Access
- 4.Using SQL
- 5.Etc

Also, all links have their link time as the default, perhaps equal to zero.

User 2 enters the HTML help system looking for basic information about SQL.

After clicking several links related to SQL (or performing a search on the topic), the user score for this topic exceeds the threshold, and the ToC expands to look like this:

- 1.Product Overview
- 2 Getting Started
- 3 Controlling Access
- 4.Using SQL
 - 1.Data Types
 - 2.DDL
 - 3.DML
 - 4.Using Views
 - 5.Defining Business Rules
 - 6.Advanced SQL
- 5.Etc.

Now, suppose that User 2 wants to know more about the product itself. She pokes around in the help for a long time, and doesn't return to any of the SQL topics. At this point, when the link timeout is exceeded for the SQL topics, the ToC would collapse to hide all of the SQL links from the ToC. It would, of course, have expanded to show whatever she was reading instead of the SQL topics.

Thus, links that are current (the user has clicked on the topic or a related topic recently, where "recent" is defined by the specific implementation) remain visible and easily accessible. Links that the user has not clicked on recently are hidden.

The examples show only the ToC, but the preferred implementation would also expand or collapse lists of "Related Information" links at the bottom of each help topic (HTML page), so that only those topics that are related to what the user has been reading recently are displayed. There would be a setting for the entire help system to allow the user to disable such tracking so that all links are always visible (none are hidden).

One key element to enable the help system to recognise "related" links is to add some metadata to each link. As part of an HTML link, you can include a query string, for example:

```
<a target="_blank" href="authentication.html?topic=security">Authentication</a>
```

The information following the question mark in the link (the href) is the query string. The file "authentication.html" could have some JavaScript to parse the query string, for example:

```
// get the arguments passed by the calling page, minus the question mark
var argstr = location.search.substr(1, location.search.length);

// parse the args, assuming ampersands between them
var args = argstr.split('&');
```

Page 4

Now, each element of the args array contains one part of the query string. In the example above, there is only one part "topic=security". The JavaScript can then further parse this to get the specific topic. Note that any given link could be assigned multiple topics, to give greater flexibility to the overall tracking of usage of the help system.

Thus, by adding a query string to each link in the help system that represents the topic metadata, the help system can use that information to track which links the user has clicked "recently", store the topics in a cookie to maintain the state (even across shutdown of the browser), and control what kinds of links the help system displays to each user.

Another possible implementation would be to allow the user to specify his or her areas of interest, and have the help system only display topics related to the specified areas of interest. In this implementation, the help system would not dynamically track links and hide or show them, but would only hide or show links when the user specifies a new area of interest. Certain implementations could combine both techniques.

Let me know if you need anything else.

Cheers,

Michael

Michael C. Morrison DB2 Replication IBM Silicon Valley Laboratory

[REDACTED]

To: Michael Morrison/Santa Teresa/IBM

[REDACTED]

Subject: IBM Confidential: SVL8-2001-0027 Method and apparatus for tracking usage of HTML-based online help systems

Michael, I plan to rate your invention disclosure SVL8-2001-0027 "FILE" meaning that we will prepare, file, and prosecute a United States patent application. However, we need some additional details to meet certain legal requirements of a patent application. Basically, we need a simple sample scenario of the invention which would teach and enable a programmer of ordinary skill to implement the invention. Do you have (or can you quickly develop) a simple flow chart and several simple HTML help files including the LotusScript to present the example from the invention disclosure:

"For example, if a user clicks several links related to a particular topic, the online help could infer the job specialty of the user, and thus hide some of the information (for example, the more basic introductory material) and include some extra information that otherwise might not be visible (for example, advanced techniques or hints and tips). For another user, the online help could infer that he or she is a novice, and thus show only the introductory material, and hide the more advanced information."

[REDACTED]

Page 5

PREPARED BY IBM ATTORNEY--PRIVILEGED AND CONFIDENTIAL

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☒ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.